



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

do it well, the observer must not only have the knowledge, but must also be provided with suitable instruments—a good time-keeper, and a transit instrument so arranged that the cross-hairs can be made visible at night. A solar compass is a good instrument for the purpose, but is not generally considered as reliable as a portable astronomical transit.

I have no doubt that some way can be devised by which a competent person could be engaged to set up correct and permanent meridian marks at each county seat. At present, I do not know just how such an arrangement can be made. Until some such step is taken, these reports, required by law, and, if well taken, of great use to the landed interests of the State, and of value in the scientific discussion of magnetic phenomena, will remain of comparatively little importance.

---

#### BOTANICAL NOTES FROM THE SOUTHWEST.

---

By B. B. Smyth.

---

The studies herein contained were made in Barton and other counties of southwestern Kansas, along the line of the Santa Fé Railroad, from 1874 to 1880.

During the spring months, there is no place more beautiful or interesting to the passer-by or the botanist than the prairies of the southwest. The abundance, beauty and size of many of the flowers causes certain spots to rival some of the showy Eastern flower gardens. A study of these plants and flowers is not without attending difficulties. Very many of the plants are different from those growing east of the Mississippi, and are not described in the *Botanies of Wood or Gray*. A *Synopsis of the Flora of Colorado*, by Porter & Coulter, contains many plants of western Kansas; though there are still others of which descriptions are not readily attainable. I am under obligations to Prof. J. H. Carruth, of Lawrence, State Botanist, also to Prof. Wood, of New York, for the determination of many plants of which no description is at hand.

In March, there are two plants, besides a little *carex* three inches high, that open their blossoms, sometimes partly under the snow. One is a little wild parsnip, three inches high, with umbels of very small, white, fragrant flowers. It is said to be *Peucedanum nudicaule*, though the plant differs from the description in the following respects: the name *nudicaule* indicates a naked stem, while the plant is well covered with leaves half-way up the stem, and that portion of the stem below the ground—three inches of it—is entirely sheathed with radical scales and leaves. Then the leaves, instead of being bipinnate or ternate-pinnate, are bipinnately or terpinately divided—the segments pinnatifid or bipinnatifid. Occasionally the seeds are

greatly inflated, becoming nearly half as thick as wide. An examination discloses a small, dark-colored coleopterous insect, seen nowhere else. In early seasons, the plant blossoms as early as February. The other is also a small umbelliferous plant, *Cymopterus montanus*, three inches high, blossoming toward the close of the month. It may be distinguished from the *Peucedanum* by its vernicose leaves, and its seeds with five or six vertical wings each, while the *Peucedanum* has but two.

*Astragali* are quite numerous and abundant; all blossom in April and May. Among the first is *Astragalus caryocarpus*, commonly called "buffalo pea." The blossoms vary on different plants, through all shades, from a pale straw-color to a rich crimson. They all change to yellowish in fading. The fruit is somewhat edible when young and tender. It is occasionally used as a substitute for green peas or asparagus. It is said by frontiersmen to possess powerful pectoral properties, clearing the throat and making the breath flow freer. The fruit, when ripe, resembles, in color, shape and size, a shell-bark hickory-nut, but is very light and corky.

A similar plant, blossoming at the same time, is *A. Mexicanus*. The color of blossom is about the same, with nearly the same variations. The habit and general appearance of plant and leaf are also much the same, and the plants are very apt to be confounded in the herbarium. An intimate acquaintance shows recognizable differences. In the latter, the stems, at the base, are smaller, harder and darker, and are more prone to cast root at the joints. The leaflets are a little more slender, and the pubescence, (what little there is,) is sparser and more closely appressed. But the fruit, when ripe, differs greatly. The pods are much smaller, harder, have a deeply sulcate ventral suture, and a hard, sharp, afflexed point.

Another *astragalus* that is quite showy is *A. mollissimus*. The flowers, a purplish straw color, are not showy, though the plant is quite so in the winter, with its large, green, very wooly leaves. I am informed by Prof. Popenoe that this is the "loco" plant, said to be poisonous to stock, though I believe they do not generally eat it.

A plant that is apt to be mistaken for an *astragalus* is *Oxytropis Lambertii*. It grows very abundantly on dry hillsides, each plant sending up numerous tall, loose racemes of crimson flowers. A hill covered with these looks like an immense floral mound.

There is a sort of dandelion (*Troximon cuspidatum*), with long, wavy-edged leaves. The flowers resemble the old-fashioned dandelion in many respects, and, like that, close in the evening and damp weather.

Abundantly, in some spots on the prairie, we find the wild onion (*Allium reticulatum*), with its pretty clusters of pink, star-shaped flowers, six inches high. The flowers have the odor of, and much resemble, garden pinks, though care in handling is necessary, so as not to crush the plants, or the odor instantly changes. These have terete, hollow leaves. Later, a taller kind, twice the height, with white flowers and flat, carinate leaves, appears. These have not the pleasant pinky odor of the others; but the garlicky odor is stronger. There is a variety intermediate in height between these two, with white and pink striate petals, and semi-terete leaves, channeled on the upper side.

These flowers, gathered into a bouquet, are almost everlasting in form and color, and have an everlasting smell, too. There is a tall species,

eighteen inches high, in moist places, that has bulbiferous umbels. These onions all have reticulated, fibrous bulbs. Cows are fond of the tops in spring, to the detriment of the butter. The bulbs form a large part of the food of the prairie squirrel. The low pink variety is worth cultivating, and would make a very pretty border in the flower garden early in spring.

On dry hills may be found abundance of *Sophora sericea*, a foot high, with its beautiful, whitish-green, silky, pinnate leaves, and terminal racemes of yellow pea-blossoms, and handsome, lead-colored calyxes.

In wet buffalo-wallows, and other wetish holes, there is a biennial species of evening primrose (*Oenothera triloba*), growing low to the earth, with many runcinate-pinnatisect leaves, about like those of a dandelion, and with rhomb-shaped yellow flowers, having a calyx tube three or four inches in length. When the seed is ripe and the leaves have fallen, the very short stem is entirely covered with the sessile, four-cornered capsules, as close as they can be crowded together. It much resembles, in size, shape and color, an old, over-grown pine cone.

A very showy species of trailing verbena is in blossom very early in May. It makes a pretty bed.

Early in May, the mallows all come into bloom. The scarlet mallow (*Malvastrum coccineum*) grows very abundantly nearly everywhere, on erect stems, ten inches high, and several to many blossoms open at the same time on each stem. These are really pretty flowers in a bouquet, and make a very pretty bed, when growing close together.

The crimson mallow (*Callirhoe involucrata*) is one of the most showy flowers growing on the prairie. They are a bright crimson, with white centers, like a portulaca, and change to purple in drying. I have found them quite double. In certain spots they are to be found in great abundance, continuing to bloom all summer. The root is perennial, one to two or more inches in diameter, abounding in mucilage, and is eaten by Indians.

Another mallow (also a *Callirhoe*) grows in damp places, on a weak stem eighteen inches high, and has white or pinkish petals, often fringed. The lower leaves are triangular, almost entire, a little above they are strongly crenate, and the upper leaves, still triangular in outline, are three to seven-parted, and the segments variously lobed and cleft.

Among dry rocks grows a very interesting little heath-like composite (*Diplopappus ericoides*), three inches high, one of the earliest composites to bloom.

*Poa compressa*, a species of blue-grass, is found in abundance along water-courses.

*Buchloe dactyloides*, the famous buffalo grass of the plains, otherwise called curly or summer mesquite, is in full bloom by the middle of May. The staminate blossoms, with their orange anthers, are quite noticeable as they stand four or five inches high, but the pistillate blossoms are hidden under the grass, about one to two inches high, and must be sought attentively to be found, and may then be found in abundance. It is remarkable, the provision made for this grass to withstand drouth. I have traced the roots in a new well to a depth of full fifteen feet from the surface, reaching quite down to that stratum of earth seldom affected by summer heat.

Two species of pentstemon, twelve or eighteen inches, found in very dry sand-hills, both with very glaucous, waxy-looking, entire leaves, one

with handsome, white or pinkish blossoms, the other with large, beautiful, blue blossoms. I have not succeeded in drying any of them without spoiling the color of the leaves.

*Ceanothus Americanus*, "red-root" or Jersey tea, is an abundant shrub in similar situations. If this plant was not a favorite in revolutionary times, its appearance deceives, for each of the petals, which rises on a little claw, tries to cover the pistil, and is shaped just like Israel Putnam's three-cornered hat of old.

About the middle of the month, the handsome spiderwort (*Tradescantia Virginica*) comes into bloom. It is abundant everywhere, and is one of the most noticeable flowers of the prairies. The flowers vary, through all shades of purple, from a very pale blue to a bright rose color. The extremes are not often found, and pure white ones are rarely found, though white ones with pink stamens sometimes appear. I have found them quite double. In one case a single flower had eight petals and sixteen stamens. They are, no doubt, capable of much improvement by cultivation.

On ground broken by gophers, and on new "breaking," we find the elegant little *Gaura coccinea*, ten or twelve inches high. Its flowers, when they first open, are white, soon change to rose color, and finally to scarlet before fading. It is one of the very few prairie flowers that is pleasantly fragrant.

About the 20th of May, on dry hillsides, I find plenty of *Pyrrhopappus grandiflorus*, (I know of no shorter name,) with brilliant yellow, dandelion-like flowers, two inches across, which are rendered more showy by contrast with the black anthers. The flower is single, on a solid, striate, one-bracted scape, rising from a radical stem, which in turn rises from a small, whitish, spongy tuber, three or four inches deep in the ground. I have never seen but one stem from one tuber; but frequently the stem is branched at or below the surface of the earth, and several scapes may arise in succession, each bearing one head. Frequently the stem may be destroyed, or even the top of the tuber cut off, in which case the tuber throws up a new stem from an almost invisible eye. The leaves, which may be called radical, are mostly at the top of the subterranean stem, and are fewer, shorter, and not so deeply gashed as dandelion leaves. The juice is milky, like lettuce. The pappus is not fiery red, as might be supposed from the name, but a tawny white. The stem has two or three scales with dormant buds between the leaves and the tuber; the tuber has several almost invisible eyes.

Other flowers blooming at the same time are *Baptisia australis*, with its coarse-looking blue flowers, nearly always gnawed by insects; *Oenothera serrulata*, a half-shrubby species, with large, crumpled petals; *Psoralea argophylla* and *floribunda*; *P. cuspidata*, with a large inflated calyx; *Aplopappus spinulosus*; *Asclepias speciosa*; *Glycyrrhiza lepidota*; *Schrankia uncinata*, the wonderful and very fragrant sensitive brier; and many others equally interesting. Yarrow is common.

A feature in this western country is the very showy and really splendid evening primrose (*Oenothera grandiflora*). It opens at a time of day when most other flowers are closed for the night, and next morning has lost its brilliant color; otherwise it would be admirable. Spots that in the spring were all pink and blue and white with anemones and wild onions, in May

are purple all day with spiderworts, and yellow all night with evening primroses.

Nearly everywhere on dry prairie, and very abundant on barren prairies, in northern Barton and Rush, grows the smokeweed (*Plantago gnaphaloides*), with spikes eight inches high, of minute white flowers. Growing alone on barren hillsides, it gives the land a bluish-gray or smoky appearance; and further north and west, where it grows more abundantly, it is said to have been the cause of the name of the Smoky Hill.

Toward the close of the month the pincushion cactus (*Mamillaria cæspitosa*) opens its blossoms. The petals vary from straw color to amber. The stigmas are green. Likewise the red pincushion cactus (*M. vivipara*) may be found in bloom. The petals vary from a pale pink to a bright red. The stigmas are red, pink, or pure white—never green. The plant, when not in blossom, may easily be distinguished from the yellow cactus, by its having the several divergent brown spines at the end of the tubercles, in addition to the circle of white spines. The fruit, too, is green when ripe, while that of the straw-colored species is red. Otherwise they are much alike.

A charming little bloomer in dry situations is *Polygala alba*, ten inches high, in dense tufts of slender stems, covered with small, white, oddly-shaped flowers, that last till the seed is half ripe.

On dry, barren rocks and bluffs may be seen in its luxuriance *Yucca angustifolia*, otherwise called "soap-root," "Spanish dagger," etc. Its numerous long, narrow, evergreen leaves are charming in the winter when everything else has turned brown. They are frequently used by hunters as cords to hang up meat. The roots are large and very long. They are believed to have burst rocks asunder by constant growing pressure.

And now we come to the crowning glory of the season—the prairie rose. Other flowers may be more brilliant, others more fragrant, others more interesting; but there is no flower that combines the beauty, the fragrance, the sweetness, the homelikeness of the rose, or anything to equal it.

Many of the flowers of May are worthy of cultivation. As best adapted to this purpose, I would recommend the scarlet and crimson mallows, the pentstemons, the spiderwort, the little guara, the pyrrhoppappus, the showy evening primrose, the shrubby evening primrose, the round cactuses, the yucca, and the rose. They will all bear cultivation, and will amply repay any pains bestowed upon them.

Early in June, in sandy spots, may be found in abundance the very interesting day-flower (*Commelyna angustifolia*), growing on low, grass-like plants, with beautiful deep-blue flowers, with two petals only, the third being suppressed, having a mere rudiment just visible. Curiously enough, the three stamens opposite the perfect petals are barren, and furnished with yellow cruciform glands instead of anthers, while the three stamens opposite the abortive petal are fully developed, and have large purple anthers. The long style bends down to meet the purple stamens. The flowers are very delicate and short-lived.

The wild gourd (*Cucurbita perennis*) is frequently found. The root is a large inverted cone, sometimes eight to twelve inches, or more, across, and throwing out numerous vines each year from the margin of the

crown. The leaves are large, rough, cordately triangular, lamina carinate, rising from the vine right and left alternately, and pointing outward. The fruit is globose, one at each leaf nearly, about the size of an orange, and striped yellow and green. It is intensely bitter.

In Stafford county, in barren alkaline lands among the sand-hills, may be found abundance of *Portulaca pilosa*, resembling in every respect the portulaca of our gardens, except that the rose-colored flowers are quite small.

In similar lands may be found a very rough, small, brittle species of *Opuntia*, with very wicked spines. These plants almost cover the ground in spots, and are a terror to horses. The joints when touched break off, and cling like a burr, and when stepped on, the spines penetrate a horse's hoof or a man's boot. I have not seen them in bloom.

The blossoms of the ordinary prickly pear (*O. vulgaris*) have very sensitive and irritable stamens. When touched, they spring suddenly against the pistil.

A morning glory (*Ipomea leptophylla*), with red blossoms four inches deep and three broad, is frequent. The plant has a large fusiform root, four to six inches thick and very tough, so that a plow cannot penetrate it.

The thistle poppy (*Argemone Mexicana*), with its large white flowers, four inches across, and yellow stamens, is very noticeable.

On dry prairies may be seen a species of wild four-o'clock (*Oxybaphus angustifolius*), tall and slender, with very narrow leaves and pretty pink flowers. These flowers open about two hours before sunset, and roll up close early next morning.

A certain tribe of Leguminosæ, including the *Psoralea*, *Amorpha*, *Dalea*, *Petalostemon*, etc., is well represented here. Common peculiarities of these plants are, that they have yellow, thick-barked, strong-scented roots, glandular or dotted leaves, and more or less imperfect flowers. Most of them bloom in midsummer. I have already mentioned *Astragalus* and *Psoralea*, which bloom earlier.

Of *Amorpha* there are two species (*A. fruticosa* and *A. canescens*), both common. Both have handsome little terminal spikes of sweet-scented blue flowers, the former very dark-blue, the latter sky-blue. There is only one petal—the banner—which envelops the blossom like a cloak. The latter, which is commonly called "shoe-string," or "devil's shoe-string," is remarkable for its long, tough, slender roots. I have traced a root, not exceeding half an inch thick at the surface, straight down to a depth of twenty-six feet. Several divisions of the root, before reaching that depth, reduced the thickness to veritable strings.

*Petalostemons* are frequent. There are three species (*P. violaceus*, *candidus*, and *villosus*). The peculiarity of these flowers is that there are no petals proper, but five alternating stamens are converted into petals, four of them oblong, and the fifth one, that takes the place of the tenth stamen, cordate. They are all raised on claws.

There are three species of *Dalea*, namely, *laxiflora*, *alopecuroides*, and *aurea*. *Dalea laxiflora* has a peculiarity of its own. It has but nine stamens, the tenth one being converted, as in the *Petalostemons*, into a cordate banner. It would thus seem to form a link connecting these two genera. This plant is otherwise interesting in its beautifully plumose calyxes. The

spike is slender and loose—the flowers arranged in three ranks that run a little spirally up the stem.

*Hosackia Purshiana* is very common. There are two strongly-marked varieties of this species. The first is small, say six inches high, slightly branched, grows abundantly on uplands, blossoms in June, ripens in July and August, and is much eaten by sheep. The second is eighteen to twenty-four inches high, very branched, grows mainly in bottom lands, and sparsely in uplands, blossoms in July and August, and ripens in September. An important peculiarity of this variety is, that when standing alone and in nowise crowded, it throws its branches invariably north and south alternating, and its branchlets crosswise. Before the branchlets appear, the leaves face east in the morning and west in the evening. At such times the plant has a very flat appearance, being often two feet high and the same in breadth. After the branchlets grow, and the blossoms are open, that flat appearance is lost, the leaves face up, and the plant becomes a little more irregular, though the north-and-south direction of the branches is never wholly lost. The plant commences branching at about six inches high, and from that up, bears in each axil either a branch, a branchlet, or a flower. I have counted on a very large specimen upward of 300 little pods, nearly all ripe, one inch in length, and each containing about five little, hard, dark, speckled beans. That plant was nearly three feet high, and about two and a half across, north and south.

In July and August blooms, in alkaline lands, near Great Bend, a gentian-like plant, *Eustoma Russelliana*, with very entire, whitish, glaucous, waxy-looking leaves, and beautiful, large, purple, violet, bluish, pinkish, or white flowers. Like the penstemons, they turn dark in the press.

Around the edges of such lands grows a species of composite, *Flaveria linearis*. This plant is three feet high, very branched, grows rank, has angular, red, green, or striped stems, opposite leaves, and a strong smell, nearly like fire-weed. There might be on a branch 30 to 80 very small, triangular heads, packed into a dense corymb, each head having a small, yellow ray, the rays all pointing outward from a common center. Each head has, in addition to its one ray, three or four disk-flowers, that bear very small, black seeds.

I have found *Liatris squarrosa*, with very white flowers, instead of red.

I append a floral clock for the months of July and August:

#### FLORAL CLOCK.

- 3 A. M.—*Calystegia Sepium*, (withers about 10 A. M.)
- 4 A. M.—*Ipomea leptophylla*, (withers at noon.)
- 5 A. M.—*Evolvulus argenteus*, (closes at 4 P. M.)
- 6 A. M.—*Pyrrophappus grandiflorus*, (closes at 6 P. M., to reopen next day. Closes also in rain or dense clouds.)
- 7 A. M.—*Callirrhoe involucrata*, (closes at 6 to 7 P. M., to reopen next day.)
- 8 A. M.—*Linum rigidum*, (falls off at 4 P. M.)
- 8 to 9 A. M.—*Specularia leptocarpa*.
- 9 A. M.—*Portulaca pilosa*, (closes at 1 P. M., does not reopen.)
- 9 to 10 A. M.—*Portulaca oleracea*, (native.)



- 11 A. M.—*Talinum teretifolium*.  
 12 M.—*Hibiscus Trionum*, (naturalized.)  
 2 P. M.—*Mamillaria vivipara*, (closes at 5 P. M., to reopen next day.)  
 4 to 5 P. M.—*Oxybaphus nyctagineus*, (closes next morning.) *Oxybaphus angustifolius*, (closes at 5 A. M. next day.)  
 6 to 7 P. M.—*Enothera sinuata*, (wilts next day.)  
 7 P. M.—*Enothera grandiflora*, (opens very promptly; wilts at 7 A. M. next day.)

This clock is subject to more or less correction and regulation.

I append also a floral calendar up to July, but the list, though useful for reference, is too long to read.

Not having perfected the list beyond July, I omit it.

## FLORAL CALENDAR.

### MARCH.

- 15th.—*Peucedanum nudicaule* (?)  
 25th.—*Cymopterus montanus*.

### APRIL.

- 4th.—*Astragalus caryocarpus*, elm.  
 8th.—Flowering Caroliniana, flowering currant.  
 10th.—*Viola cucullata*, wild plum.  
 12th.—*Astragalus Mexicanus*, soft maple.  
 13th.—*Cercis Canadensis*, box elder.  
 15th.—*Troximon cuspidatum*, wild gooseberry.  
 16th.—*Draba Caroliniana*.  
 18th.—*Lithospermum longiflorum*, choke cherry, *Myosurus minimus*.  
 20th.—*Allium reticulatum*, *Baptisia leucophæa*.  
 22d.—*Oxalis violacea*.  
 25th.—*Senecio aurea*.  
 27th.—*Lathyrus linearis*.  
 28th.—*Enothera triloba*.  
 30th.—*Sophora sericea*, *Verbena Aubletia*.

### MAY.

- 1st.—*Astragalus Missouriensis*, *Callirrhoe digitata*.  
 2d.—*Oxalis stricta*, *Poa compressa*.  
 3d.—*Astragalus lotiflorus*, *Callirrhoe involucrata*.  
 4th.—*Allium reticulatum alba*, *Buchloe dactyloides*, *Smilacina stellata*.  
 5th.—*Ceanothus Americanus*, *Vitis riparia*.  
 6th.—*Rhus radicans*, *Diplopappus ericoides*, *Polygala alba*, *Linum* (perenne?—a perennial,) *Pentstemon (albidus?)*  
 7th.—*Malvastrum coccineum*, *Lithospermum canescens*, *Actinella scapososa*, *Oxytropis Lambertii*.  
 8th.—*Guara coccinea*.  
 9th.—*Onosmodium Virginicum*.

- 10th.—*Hymenopappus scabiosæus*, *Physalis Pennsylvanica*.  
 11th.—*Oenothera serrulata*, *Ampelopsis quinquefolia*.  
 12th.—*Acerates viridis*, *Baptisia leucantha*.  
 13th.—*Delphinium tricornis*, *Achillea millefolia*, *Tradescantia Virginica*,  
*Poa compressa*.  
 14th.—*Pentstemon (cyananthus?) Asclepias* — (melliferous), *Lippia cuneifolia* (*lanceolata?*) *Acerates paniculata*.  
 15th.—*Pyrrhopappus grandiflorus*, *Calystegia Sepium*, *Psoralea argophylla*.  
 16th.—*Amorpha fruticosa*, *Psoralea floribunda*, *Evolvulus argenteus*.  
 17th.—*Linum rigidum*, *Gymnocladus Canadensis*, *Achillea millefolia*,  
*Psoralea hypogea*.  
 18th.—*Teucrium Canadense*, *Yucca angustifolia*.  
 19th.—*Aplopappus spinulosus*, *Verbena bracteosa*.  
 20th.—*Oxybaphus angustifolius*, *Diplopappus ericoides*.  
 21st.—*Houstonia tenuifolia*.  
 22d.—*Asclepias speciosa*, *Glycyrrhiza lepidota*.  
 23d.—*Oenothera sinuata*, *Mamillaria vivipara*.  
 24th.—*Oenothera grandiflora*, *Brizopyrum spicatum*.  
 25th.—*Schrankia uncinata*, *Apocynum hypericifolia*, *Mamillaria cæspitosa*.  
 26th.—*Symphoricarpos racemosus*, *Cornus paniculata*.  
 27th.—*Rosa blanda*, *Thelesperma gracile*.  
 28th.—*Plantago gnaphaloides*, *Lepachis columnaris*.  
 29th.—*Monarda punctata*, *Helianthus rigidus*, *Apocynum androsæmifolium*.  
 30th.—*Solanum rostratum*, *Hordeum jubatum*.  
 31st.—*Asclepias tuberosa aurea*, *Acerates longifolia*, *Helianthus rigidus*.

## JUNE.

- 1st.—*Sisyrinchium anceps*, *Erigeron strigosum*.  
 2d.—*Stipa juncea*.  
 3d.—*Hosackia Purshiana*.  
 4th.—*Ipomea leptophylla*, *Talinum teretifolium*.  
 5th.—*Commelyna angustifolia*.  
 6th.—*Cornus circinata*, *Kœleria cristata*.  
 7th.—*Onosmodium Virginianum*.  
 8th.—*Lithospermum canescens*.  
 9th.—*Oxybaphus nyctagineus*, *Opuntia vulgaris*.  
 10th.—*Portulaca pilosa*, *Cucurbita perennis*.  
 11th.—*Argemone Mexicana*, *Lythrum alatum*.  
 12th.—*Specularia leptocarpa*, *Specularia perfoliata*.  
 13th.—*Acerates lanceifolia*, *Amorpha canescens*.  
 14th.—*Solanum rostratum*.  
 15th.—*Verbena stricta*, *Rhus glabra*, *Salvia lanceolata*.  
 16th.—*Martynia proboscidea*, *Lygodesmia juncea*.  
 17th.—*Guara biennis*.  
 18th.—*Ruellia ciliosa*.  
 19th.—*Petalostemon violaceum*.

- 20th.—*Sambucus Canadensis*.  
21st.—*Croton Texensis*, *Frœlichia floridana*.  
22d.—*Polygala alba*, *Sida spinosa*.  
24th.—*Petalostemon candidum*.  
25th.—*Cleome integrifolia*.  
26th.—*Polanisia uniglandulosa*.  
27th.—*Acerates angustifolia*, *Cirsium undulatum*, *Coreopsis tinetoria*.  
28th.—*Asclepias tuberosa*, *Rhus radicans*.  
29th.—*Dalea aurea*, *Dalea alopecuroides*.

### JULY.

*Petalostemon villosus*, *Cenchrus tribuloides*, *Mentzelia albicaulis*, *Cuscuta chlorocarpa*, *Desmanthus brachylobus*, *Stenosiphon virgatus*, *Gerardia purpurea*, *Cleomella angustifolia*, *Lobelia cardinalis*, *Salvia Pitcheri*, *Asclepias verticillata*, *Silphium laciniatum*, *Asclepias incarnata*, *Vernonia fasciculata*, *Liatris pycnostachya*, *Cassia chamærista*, *Frœlichia procumbens*, *Acerates rotundifolia*, *Asclepias verticillata nana*, *Polygonum persicaria*, *Cuscuta glomerata*, *Erigeron divaricatum*, *Paronychia Jamesii*, *Gailardia pulchella*, *Grindelia squarrosa*, *Eustoma Russelliana*, *Flaveria linearis*, *Liatris squarrosa*, *Euphorbia marginata*, *Cassia Marylandica*, *Phaseolus diversifolius*.

---

### STONE IMPLEMENTS IN TREGO COUNTY.

---

By J. Savage, Lawrence.

---

In company with Prof. Patrick, of the State University, the writer made a short collecting tour in Trego county, Kansas, in 1878. We stopped off at the new town of WaKeeney, for headquarters, and made side-trips to different parts of the county.

The third day after our arrival, we made an excursion nine miles northwest of WaKeeney, on the Saline fork of the Kansas river, to look after some bones reported to be of large size. We found them to be the bones of a buffalo, and protruding from the alluvial soil upon the side of a draw or ravine.

It was here, at the residence of Mr. J. M. Davis, that we found numerous fragments of stone implements lying about the premises. These we readily secured through the generosity of Mr. Davis, and also made arrangements for saving any others he might afterward find. The implements thus secured, whole and in fragments, amount to several hundred pounds in weight. They consisted of stone mallets (many of them of large size), pestles, lap-stones, grinding-stones, and smoothing-stones. The smoothing-stones were many of them much worn by use, and nearly all of them were unbroken.